

What Is Claimed Is:

1 1. A method of providing a connection between a first device and a second
2 device, said method comprising:

3 establishing said connection between said first device and said second device;
4 storing in a third device a first plurality data elements necessary for re-establishing
5 said connection;
6 receiving a second data element when said second device is reinitialized; and
7 reestablishing said connection by modifying at least one parameter value in each
8 of said first device and said second device based on said first plurality of data elements
9 and said second data element.

1 2. The method of claim 1, wherein said second device contains a plurality of
2 objects providing said connection, wherein said second data element comprises an index
3 indicating a memory location where one of said plurality of objects is stored.

1 3. The method of claim 2, wherein said plurality of objects comprises a link
2 object and a virtual communication relationship (VCR) object, wherein said link object
3 provides a link between said VCR object and a location storing an application data
4 exchanged between said first device and said second device, and said VCR object
5 provides a link to another VCR object in said first device.

1 4. The method of claim 3, wherein said second device comprises a publisher and
2 said first device comprises a subscriber, said first device and said second device being

3 contained in a control system, said second device containing a second function block to
4 generate said application data and said first device containing a first function block to
5 receive said application data, and wherein said index specifies a memory location where
6 said second function block is located after said second device is reinitialized.

1 5. The method of claim 4, wherein said reestablishing comprises modifying a
2 local index field in said link object according to said index.

1 6. The method of claim 5, wherein said third device comprises a supervisory
2 control station, said method further comprising maintaining a copy of said link object in
3 said supervisory control station, wherein said modifying comprises changing said local
4 index field in said copy and downloading said copy to said second device.

1 7. The method of claim 6, further comprises maintaining in said supervisory
2 control station a catalogue of connections from/to each of said function blocks, wherein
3 said copy is identified according to said catalogue.

1 8. The method of claim 7, further comprising modifying a remote index field in a
2 link object contained in said first device.

1 9. The method of claim 3, wherein said second device comprises a subscriber and
2 said first device comprises a publisher, said first device and said second device being
3 contained in a control system, said second device containing a second function block to
4 receive said application data, and wherein said index specifies a memory location where

5 said second function block is located after said second device is reinitialized.

1 10. The method of claim 3, wherein said device comprises a replaced unit.

1 11. A computer readable medium carrying one or more sequences of instructions
2 for causing a control station to provide a connection between a first device and a second
3 device, wherein execution of said one or more sequences of instructions by one or more
4 processors contained in said control station causes said one or more processors to perform
5 the actions of:

6 storing a first plurality data elements necessary for re-establishing said connection;

7 receiving a second data element when said second device is reinitialized; and

8 reestablishing said connection by modifying at least one parameter value in each
9 of said first device and said second device based on said first plurality of data elements
10 and said second data element.

1 12. The computer readable medium of claim 11, wherein said second device
2 contains a plurality of objects providing said connection, wherein said second data
3 element comprises an index indicating a memory location where one of said plurality of
4 objects is stored.

1 13. The computer readable medium of claim 12, wherein said plurality of objects
2 comprises a link object and a virtual communication relationship (VCR) object, wherein
3 said link object provides a link between said VCR object and a location storing an
4 application data exchanged between said first device and said second device, and said

5 VCR object provides a link to another VCR object in said first device.

1 14. The computer readable medium of claim 13, wherein said second device
2 comprises a publisher and said first device comprises a subscriber, said first device and
3 said second device being contained in a control system, said second device containing a
4 second function block to generate said application data and said first device containing a
5 first function block to receive said application data, and wherein said index specifies a
6 memory location where said second function block is located after said second device is
7 reinitialized.

1 15. The computer readable medium of claim 14, wherein said reestablishing
2 comprises modifying a local index field in said link object according to said index.

1 16. The computer readable medium of claim 15, further comprising maintaining a
2 copy of said link object in said control station, wherein said modifying comprises
3 changing said local index field in said copy and downloading said copy to said second
4 device.

1 17. The computer readable medium of claim 16, further comprises maintaining in
2 said control station a catalogue of connections from/to each of said function blocks,
3 wherein said copy is identified according to said catalogue.

1 18. The computer readable medium of claim 17, further comprising modifying a
2 remote index field in a link object contained in said first device.

1 19. The computer readable medium of claim 13, wherein said second device
2 comprises a subscriber and said first device comprises a publisher, said first device and
3 said second device being contained in a control system, said second device containing a
4 second function block to receive said application data, and wherein said index specifies a
5 memory location where said second function block is located after said second device is
6 reinitialized.

1 20. The computer readable medium of claim 13, wherein said device comprises a
2 replaced unit.

1 21. A system in which a connection between a first device and a second device,
2 said system comprising:

3 means for establishing said connection between said first device and said second
4 device;

5 means for storing a first plurality data elements necessary for re-establishing said
6 connection;

7 means for receiving a second data element when said second device is
8 reinitialized; and

9 means for reestablishing said connection based on said first plurality of data
10 elements and said second data element.

1 22. The system of claim 21, wherein said second device contains a plurality of
2 objects providing said connection, wherein said second data element comprises an index

3 indicating a memory location where one of said plurality of objects is stored.

1 23. The system of claim 22, wherein said plurality of objects comprises a link
2 object and a virtual communication relationship (VCR) object, wherein said link object
3 provides a link between said VCR object and a location storing an application data
4 exchanged between said first device and said second device, and said VCR object
5 provides a link to another VCR object in said first device.

1 24. The system of claim 23, wherein said second device comprises a publisher
2 and said first device comprises a subscriber, said first device and said second device
3 being contained in a control system, said second device containing a second function
4 block to generate said application data and said first device containing a first function
5 block to receive said application data, and wherein said index specifies a memory location
6 where said second function block is located after said second device is reinitialized.

1 25. The system of claim 24, wherein said reestablishing comprises modifying a
2 local index field in said link object according to said index.

1 26. The system of claim 25, said system further comprising maintaining a copy of
2 said link object in said supervisory control station, wherein said modifying comprises
3 changing said local index field in said copy and downloading said copy to said second
4 device.

1 27. The system of claim 26, further comprises maintaining in said supervisory

2 control station a catalogue of connections from/to each of said function blocks, wherein
3 said copy is identified according to said catalogue.

1 28. The system of claim 27, further comprising modifying a remote index field in
2 a link object contained in said first device.

1 29. The system of claim 23, wherein said second device comprises a subscriber
2 and said first device comprises a publisher, said first device and said second device being
3 contained in a control system, said second device containing a second function block to
4 receive said application data, and wherein said index specifies a memory location where
5 said second function block is located after said second device is reinitialized.

1 30. The system of claim 23, wherein said device comprises a replaced unit.
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